Final Project Closeout Report
For
Building 668

Revision: 0

April 2004

Remediation, Industrial D&D, and Site Services
Kaiser-Hill Company, LLC

RECEIVED
MAY 1 1 2004

Review for Classification
Name _
Date _____

ADMIN RECORD

IA-A-002134

Table of Contents

2

I. Introduction

Building 668 was a 1,540 square foot single-story building constructed in 1957 The exterior walls were Transite® panels and fiberglass panels, the floor was a concrete pad poured on grade Building 668 was not a heated building and did not have a ventilation system The building was originally wired for electricity but was disconnected several years before demolition The building was also fitted with fire protection sprinkler heads, but these heads were never activated and water service was never provided to the sprinkler heads, or the building in general Electricity from overhead lines was the only utility ever supplied to Building 668

Building 668 was originally used to seal fiberglass-coated wood waste crates after being filled with low level waste The crates were sealed using fiberglass matting and sprayed on fiberglass resin This operation was moved to Building 664 in the 1980's and Building 668 was then used to inspect, number, label, and certify new waste crates and waste drums prior to being sent to the production buildings to be filled with waste Although the waste crate sealing operation that occurred in the early days of operation did contain radioactive waste, the waste containers were never opened, they were only permanently sealed prior to shipment Polyester resins and cleaning solvents were used in the fiberglass operations

Based on historical use, building 668 was anticipated to be a Type 1 facility However, during the Reconnaissance Level Characterization process, radiological contamination was discovered and the building was re-typed as a Type 2 facility

II. Action Description

Prior to starting any actions, Building 668 was inspected by a Professional Engineer (PE) to determine if the building was safe to occupy Several years of neglect had left the building in a severely deteriorated state, and there was concern that it may collapse The PE determined that the deterioration was confined to the shell of the building and that all structural components were sound

The next step was to empty the building The building had been used as an unofficial material and equipment storage area, and had become severely cluttered The deteriorated state of the walls and roof had allowed the stored items to be impacted by the environment, and most materials were removed and managed as non-routine sanitary waste (NRSW) A few items such as a snow blower and a dewer canister of nitrogen were salvaged

Once the building was free of clutter, the Reconnaissance level Characterization (RLC)/Pre-Demolition Survey (PDS) proceeded The survey identified up to 200 dpm/100cm^2 of fixed plutonium contamination on the 668 slab in three areas totaling about 12 square meters The contamination was confined to the western half of the slab See section V for a discussion of the radiological analyses The above-slab structure was free from radiological contamination

3

To further investigate the contaminated areas, Ten concrete core samples, plus one dulplicate (eleven total), were taken from the slab of Building 668 and analyzed for total metals, semivolatiles (SVOC), and volatiles (VOC) Seven of the samples were taken from locations biased to the areas where Pu contamination had been discovered The other four samples were taken outside of the Pu areas The metals and VOA analyses did not produce any hits above the RCRA limits The SVOC analyses produced one result, for hexachlorobenzene, above the RCRA limit The totals hexachlorobenzene result was 3 8 parts per million (ppm) Using the "divide by 20" method this translates to a TCLP result of 0 19ppm The RCRA limit is 0 13ppm However, because the hexachlorobenzene was isolated to the one location, and the entire west half of the slab was considered a homogenous area for disposal, the slab was not considered RCRA hazardous The slab has been managed as straight low-level waste

The RLC/PDS also identified transite panels as non-friable ACM The panels were removed during the RLC/PDS effort

D&D Methodology

In order to protect the slab, and manage the structure as sanitary waste, the demolition of B668 proceed in two phases During Phase 1, demolition of the structure by heavy equipment, the slab was covered with plywood to prevent spread of contamination from debris falling on the slab All structural debris was managed as NRSW and disposed at an RFETS approved landfill (BFI – HWY 93)

Phase 2 of the demolition involved removal of the slab The slab was separated into two work areas in order to isolate the portion that would be managed as LLW A concrete saw was used to cut through the slab and separate the east and west halves of the slab The cut was placed to avoid sawing through areas of contamination The east half was removed as NRSW and disposed at an RFETS approved landfill (BFI, HWY 93) The west half of the slab (LLW) was further cut into sections that would fit into an IP-1 container Twenty IP-1s were filled with the contaminated concrete and are awaiting transportation to an appropriate disposal facility

III. Verification Action Goals Were Met

Four action objectives were established for Building 668 prior to beginning the demolition

- ***Inspection by Professional Engineer (PE)***

The facility was inspected by a PE to ensure that it was safe for entry by workers

- ***Removal of Debris***

The contents of the building were removed to provide access to the slab for RLC/PDS surveys

- ***Complete Reconnaissance Level Characterization Report (RLCR)***

4

Because the RLC was conducted to meet PDS requirements, an additional survey report was not required prior to demolition

- ***Remove Non-Friable Asbestos Containing Material***

Transite panels were removed and managed appropriately

IV. Verification of Treatment Process

This section is not applicable to this project

V. Radiological Analysis

During the RLC, Building 668 was characterized for radiological hazards per the Pre-Demolition Survey plan (PDSP) Radiological characterization was performed to define the nature and extent of radioactive materials that may be present on the facility surfaces Based upon a review of historical and process knowledge, building walk-downs, and MARSSIM guidance, a Radiological Characterization Plan was developed during the planning phase that describe the minimum survey requirements (refer to the RISS Characterization Project files)

Radiological survey package 668-A-001 was developed for the interior surfaces of Building 668 The exterior surfaces of Building 668 were surveyed as part of radiological survey package EXT-B-001 The survey packages were developed in accordance with Radiological Safety Practices (RSP) 16 01, *Radiological Survey/Sampling Package Design Preparation, Control, Implementation and Closure* Total surface activity (TSA), removable surface activity (RSA), media samples, and scan measurements were collected in accordance with RSP 16 02 *Radiological Surveys of Surfaces and Structures* Radiological survey data were verified, validated and evaluated in accordance with RSP 16 04, *Radiological Survey/Sample Data Analysis* Quality control measures were implemented relative to the survey process in accordance with RSP 16 05, *Radiological Survey/Sample Quality Control*

Thirty-seven (37) TSA measurements (15 random, 10 biased, 10 equipment and 2 QC) and thirty-five (35) RSA measurements (15 random, 10 biased, 10 equipment) were performed on the interior surfaces of Building 668 One hundred percent of the facility interior floor and a minimum of 10% of the remaining surfaces were scanned The RLC/PDS data confirmed that the concrete slab contained plutonium contamination on the western half of the slab above the surface contamination guidelines provided in the PDS Plan All other building surfaces were less than the surface contamination guidelines provided in the PDS Plan

The B668 RLCR/PDSR is available in the RISS project files

VI. Demolition Survey Results

The Air Quality Management (AQM) program did not require air monitoring during this effort

VII. Waste Stream Disposition

Building 668 Closure Project generated sanitary, TSCA, and low-level radiological waste Listed below is the quantity and disposal site for these waste types and materials

1 Sanitary Disposal	
Disposal Site	Front Range Landfill, Erie, Colorado
Waste Volume (m3)	180
Waste Weight (tons)	100 49
Additional Information	This waste included building structural material that met the free-release criteria
2 Hazardous Disposal	N/A
Disposal Site	
Waste Volume (m3)	
Waste Weight (tons)	
Additional Information	
3 Asbestos Waste Disposal (TSCA)	
Disposal Site	BFI Tower Road, Commerce City, CO
Waste Volume (m3)	5
Waste Weight (tons)	3
Additional Information	Transite panels
4 Low Level Waste Disposal	
Disposal Site	Waste remains at RFETS waiting on transportation arrangements
Waste Volume (m3)	31 71
Waste Weight (tons)	28 9
Additional Information	This waste consists of the contaminated portions of the concrete slab and is contained in 20 IP-1 half boxes
5. Recycled Material	N/A
Disposal Site	
Waste Volume (m3)	
Waste Weight (tons)	
Additional Information	
6 Property Disposition	N/A
Disposal Site	
Waste Volume (m3)	
Waste Weight (tons)	
Additional Information	

6

VIII. Deviations from the Decision Document

There were no deviations from the decision document

IX. Description of Site Condition at End of Decommissioning

The entire above ground building structure, concrete pad, and electrical lines were removed There were no underground utilities The compete structure and associated utilities (electric) have been removed There is nothing remaining

Building 668 is associated with IHSS Group 400-10, specifically IHSS120 1 'Tiberglass area north of Building 664 " ER performed a detailed investigation of the IHSS area as part of IHSS 400-10, and received LRA concurrence that this IHSS group is a NFAA site

X. Demarcation of Excavation

This section is not applicable

XI. Demarcation of Waste Left in Place

The entire structure and slab of B668 was removed and no waste remains for further actions

XII. Dates and Duration of Specific Activities

The PF inspection, debris removal, RI C/PDS, and demolition of the non-contaminated portions of the building all occurred in September 2003 Removal and packaging of the contaminated portions of the slab, as well as re-grading the site occurred between September and December of 2003 Following are the dates of the key activities for the B668 Closure Project

- PE inspection — Completed September 03, 2003
- Debris Removal — September 2003
- PDS — Completed September 18, 2003
- Asbestos Abatement — September 2003
- Demolition Activities — September 2003 through December 2003

XIII. Final Disposition of Wastes

See Section VII

XIV. Next Steps for the Area

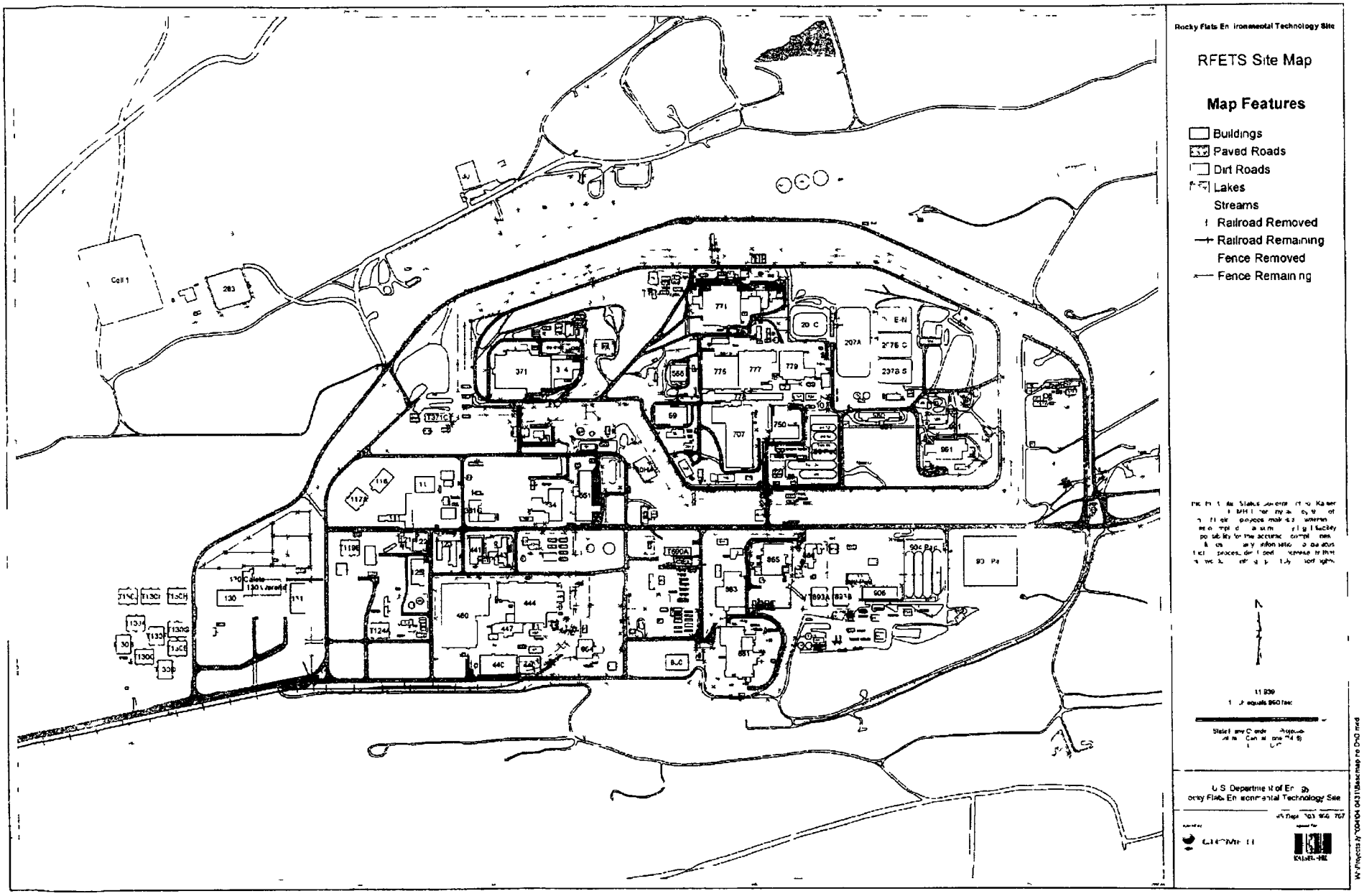
The Building 668 slab, structure, and utilities have been removed The site has been graded ER samples taken from the footprint and adjacent areas did not indicate remaining contamination, and no further work is anticipated other than establishing the final site grade

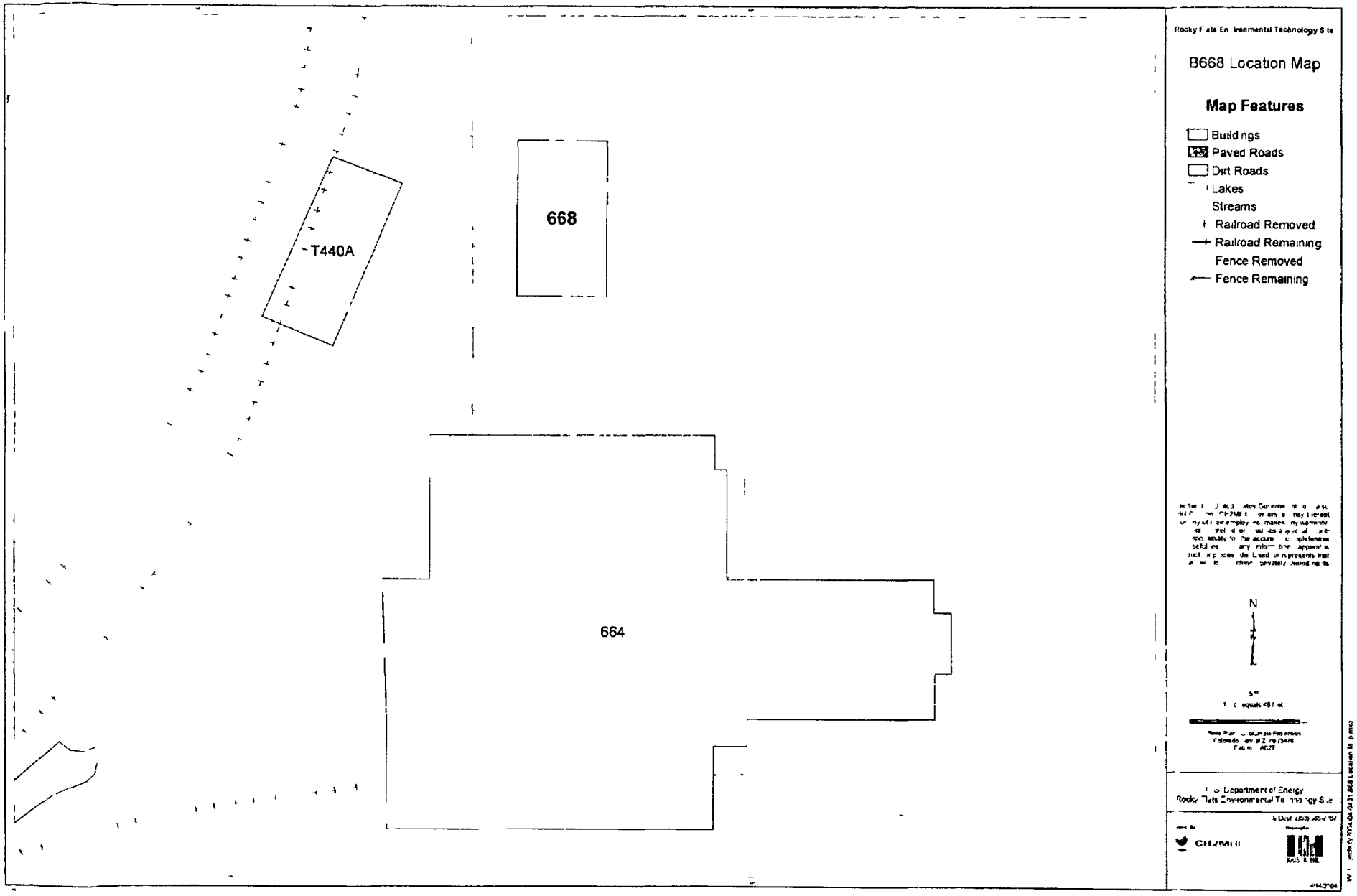
7

Appendix 1
Maps

Article 1 **RFETS Area Plot Plan**

Article 2 **B668 Plot Plan**


Rocky Flats Environmental Technology Site
RFETS Site Map
Map Features
Buildings
Paved Roads
Dirt Roads
Lakes
Streams
Railroad Removed
Railroad Remaining
Fence Removed
Fence Remaining
U.S. Department of Energy
Rocky Flats Environmental Technology Site


T440A
668
664
Rocky Flats Environmental Technology Site
B668 Location Map
Map Features
Buildings
Paved Roads
Dirt Roads
Lakes
Streams
Railroad Removed
Railroad Remaining
Fence Removed
Fence Remaining
N
U.S. Department of Energy
Rocky Flats Environmental Technology Site
CH2MHILL

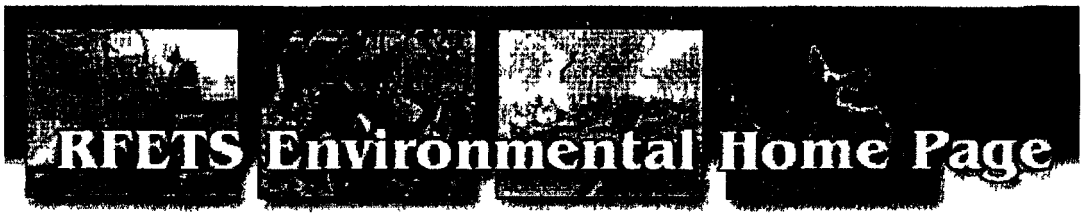
Appendix 2
Rocky Flats Environmental Technology Site Regulatory Contact Records

Article 1	**Contact Record, September 10, 03** **Discussion of preliminary Reconnaissance Level Characterization results**
Article 2	**Contact Record, February 25, 04** **Discussion concerning sampling soil for volatile compounds**

Article 1
Contact Record, September 10, 03

Discussion of preliminary Reconnaissance Level Characterization results

10



Welcome to the RFETS Regulatory Contact Record Database

Please enter any of the information specific to the record(s) being queried in the fields below and press the "Submit" key You may enter single or multiple search criteria by utilizing the fields below Subsequent criteria may be added to refine your search To create a new search, press the "Clear Form" The query will search the database using "and" statements Records meeting the criteria specified will be displayed below Please scroll through the record output using the arrow keys to locate the record of choice

Building 668
Author
Regulatory Contact
Date Range From To
Keyword

Submit Query Clear Form

(1 of 2)

Number	1061
Date and Time	9/10/2003 10 00 00 AM

Primary Site Contact	D A Parsons	Primary Reg Contact	Dave Krucheck
SecondaySite Contact		Seconday Reg Contact	

Unit	Building	Site Phone	Agency
	668		CDPHE

Purpose

Building 668 Transite Wall Paneling Removal

Discussion

Meeting Attendance D Parsons, RISS D Kruchek, CDPHE M Flannery, RISS
Discussion During a meeting held on Wednesday morning, 9/10/03, Duane Parsons (RISS) and Mike Flannery (RISS) discussed the preliminary reconnaissance level characterization (RLC) survey results for Building 668 with David Kruchek (CDPHE) A walkdown of B668 was also conducted during the meeting RLC radiological survey results were all less than the unrestricted release criteria, except for one area on the concrete floor that is still being investigated The highest elevated spot on the floor was approximately 160 dpm/100cm2 with an Electra, no loose contamination was found Since the elevated spot was in an area where rusty metal drums and pallets once stood, it is suspected that the contamination is naturally occurring polonium 210 activity A concrete sample of the highest elevated spot on the floor was collected, but the isotopic results are not yet back from the laboratory Beryllium smears have also been collected inside B668, all results were <0 1 ug/100cm2 Based on the RLC radiological and beryllium survey results of the walls and ceiling, and the numerous large openings presently in the building (due to building deterioration), it was determined that it would be acceptable to complete the removal of the transite wall paneling prior to the completion for the RLC report The transite wall paneling work will be performed using an approved B668 asbestos abatement permit and workers will be in appropriate PPE Duane Parsons will inform David Kruchek and Mike Flannery of the concrete sample results as soon they are known

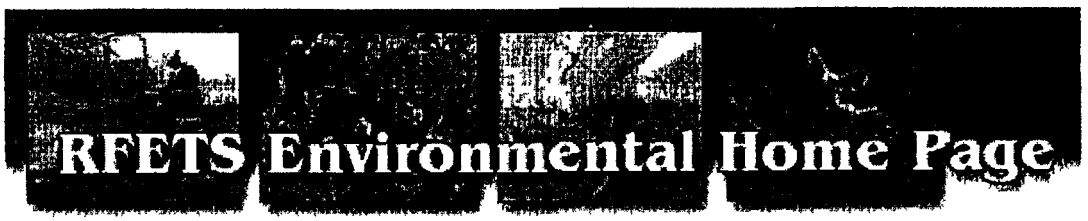
Follow-Up

Please contact Doug Schlagel at extension 4175 for assistance with this page

Article 2
Contact Record, February 25, 04

Discussion concerning sampling soil for volatile compounds

15



Welcome to the RFETS Regulatory Contact Record Database

Please enter any of the information specific to the record(s) being queried in the fields below and press the "Submit" key You may enter single or multiple search criteria by utilizing the fields below Subsequent criteria may be added to refine your search To create a new search, press the "Clear Form" The query will search the database using "and" statements Records meeting the criteria specified will be displayed below Please scroll through the record output using the arrow keys to locate the record of choice

Building 668
Author
Regulatory Contact
Date Range From To
Keyword

Submit Query Clear Form

(2 of 2)

Number	1207
Date and Time	2/25/2004 2 40 00 PM

Primary Site Contact	Marcella Broussard	Primary Reg Contact	Dave Krucheck
SecondaySite Contact		Seconday Reg Contact	

Unit	Building	Site Phone	Agency
	668		CDPHE

Purpose

IHSS Group 600-3 Surface VOC Sample Discussion

Discussion

16

The sampling specification table (Table 3) from IASAP FY04 Addendum #IA-04-05 indicates that a VOC sample was to be collected from surface soil at statistical location BZ36-027 (Location BZ36-027 is shown on Figure 3 of the SAP) This was the only surface VOC sample proposed in the SAP because it was the only location beneath the slab at Building 668 This sample was not collected at the time that the rest of the surface suite (radionuclides, metals, and SVOCs) at BZ36-027 was collected on 1/20104 In discussion with Mr Kruchek it was decided that returning to BZ36027 to collect this surface VOC sample, on or after 2/25/04, was unnecessary for the following reasons- The time between exposure of location BZ36-027 to the atmosphere and sampling for VOCs would be at least a month This would give any VOCs that might have been present a chance to volatilize, making detection improbable Soil disturbance at the site during removal of the Building 668 slab would have further accentuated volatilization of any potential VOCs from location BZ36027 The subsurface (0 5-1 5 ft) VOC sample collected at BZ36-027 on 1/20104 returned results that were all non-detections (V-qualified) Subsurface VOC analyses for the other 7 accelerated action locations at IHSS Group 600-3 also returned results that were non-detections or estimates near detection limits (U or J/JB qualified)

Follow-Up

Please contact Doug Schlagel at extension 4175 for assistance with this page

Appendix 3
B668 RLC/PDS Report

18

Revised 10/03

CORRES CONTROL
INCOMING LTR NO
01046 RF03

DUE DATE
ACTION

RECEIVED
2003 NOV 17 P 2:05
CORRESPONDENCE CONTROL

STATE OF COLORADO

Bill Owens, Governor
Douglas H. Benevento, Executive Director
Dedicated to protecting and improving the health and environment of the people of Colorado

4300 Cherry Creek Dr S
Denver, Colorado 80246-1530
Phone (303) 692-2000
TDD Line (303) 691 7700
Located in Glendale, Colorado
http://www.cdphe.state.co.us

Laboratory and Radiation Services Division
8100 Lowry Blvd
Denver Colorado 80230-6928
(303) 692-3090

Colorado Department of Public Health and Environment

DIST	LTR	ENC
BERARDINI, J. H.	X	
BOGNAR, E. S.	X	
BROOKS, L.	X	
BUTLER, L.	X	
CARPENTER, M.	X	
CROCKETT, G. A.		
DECK, C. A.	X	
DEGENHART, K. R.		
DIETER, T. J.		
DIETERLE, S. E.		
FERRERA, D. W.	X	
GIACOMINI, J. J.		
LINDSAY, D. C.	X	
LONG, J. W.		
LYLE, J. L.		
MARTINEZ, L. A.	X	
NAGEL, R. E.	X	
NESTA, S.	X	
NORTH, K.	X	
PARKER, A. M.	X	
RODGERS, A. D.		
SHELTON, D. C.	X	
SPEARS, M. S.		
TRICE, K. D.		
TUOR, N. R.	X	
WIEMELT, K.	X	
WILLIAMS, J. L.		
ZAHM, C.	X	
Parsons, D	X	
COR. CONTROL	X	
ADMIN. RECORD	X	
PATS/130		

November 12, 2003

Mr Joe Legare
Assistant Manager for Environment and Stewardship
U.S Department of Energy, Rocky Flats Field Office
10808 Highway 93, Unit A
Golden, CO 80403-8200

RE Reconnaissance Level Characterization Report (RLCR) and Pre-Demolition Survey Report (PDSR) for Building 668 – Concurrence for Type 2 Facility Designation and PDSR Approval

Dear Mr Legare

The Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division has received and reviewed the PDSR for Building 668, Revision 0 dated September 18, 2003 (received on October 8, 2003) and Version 1 dated October 31, 2003, received on November 10, 2003 The Version 1 PDSR was provided after additional investigation was performed due to concerns raised during consultative meetings. Based on the information contained in the Version 1 PDSR, we are hereby approving the PDSR for B668 and providing concurrence with the Type 2 Facility designation for B668

It is indicated that this PDSR is being provided to Type this building per the DPP However, the DPP (Decommissioning Program Plan) specifically identifies that the Buildings will be Typed through the performance of a Reconnaissance Level Characterization and subsequent RLCR, which was not specifically provided for B668 However, we believe the information provided in this PDSR is sufficient to make the determination that B668 is a Type 2 facility as indicated, without performing and providing a specific RLCR for our concurrence. Although we are allowing this deviation from standard procedure and the approved characterization process, this should not be considered a precedent for future characterization actions

It is also our understanding that the concrete slab will be cut in half, with the contaminated western half being disposed as LLW and the eastern half disposed as sanitary waste or as otherwise characterized As also stated in the PDSR, none of the slab will be recycled on site

If you have any questions regarding this correspondence please contact me at (303) 692-3367 or David Kruchek at (303) 692-3328

Sincerely,

Steven H Gunderson
RFCA Project Coordinator

Reviewed for Addressee
Corres Control RFP
11/17/03 LC
Date By

Fiel Ltr #

DOE ORDER #
5400.1

cc Steve Tower, DOE
Tim Rehder, EPA
Duane Parsons, KH
Administrative Records Building T130G
Karen Wiemelt, KH
Dave Shelton, KH
Steve Nesta, KH

19

Appendix 4
CDPHE RSOP Notification Concurrence

Article 1 **November 13, 2003, Facility Disposition RSOP– Demolition of Building 668**

20

Revised 10/03

CORRES CONTROL
INCOMING LTR NO

01048 RF03

DUE DATE
ACTION

RECEIVED
2003 NOV 17 P 2:08
CORRESPONDENCE CONTROL

STATE OF COLORADO

Bill Owens, Governor
Douglas H Benevento Executive Director

Dedicated to protecting and improving the health and environment of the people of Colorado

4300 Cherry Creek Dr S
Denver, Colorado 80246-1530
Phone (303) 692 2000
TDD Line (303) 691-7700
Located in Glendale, Colorado

http://www cdphe.state co us

Laboratory and Radiation Services Division
8100 Lowry Blvd
Denver Colorado 80230-6928
(303) 692-3090

Colorado Department
of Public Health
and Environment

DIST.	LTR	ENC
BERARDINI, J H	X	
BOGNAR, E S.	X	
BROOKS, L.	X	
BUTLER, L.	X	
CARPENTER, M.	X	
CROCKETT, G A.		
DECK, C A.	X	
DEGENHART, K R.		
DIETER, T J.		
DIETERLE, S. F.		
FERRERA, D. W.	X	
GIACOMINI, J. J.		
LINDSAY, D. C.	X	
LONG, J W		
LYLE, J. L.		
MARTINEZ, L A.	X	
NAGEL, R. E.	X	
NESTA, S.	X	
NORTH, K.	X	
PARKER, A. M.	X	
RODGERS, A. D		
SHELTON, D. C	X	
SPEARS, M. S.		
TRICE, K. D.		
TUOR, N. R.	X	
WIEMELT, K.	X	
WILLIAMS, J. C.		
ZAHM, C.	X	
Pausen, D	X	

COR. CONTROL	X	
ADMN. RECORD	X	
PATS/130		

Reviewed for Addressee
Corres Control RFP

11/17/03 dc
Date By

Ref Ltr #

DOE ORDER #
5400.1

November 13, 2003

Mr Joseph Legare
Assistant Manager for Environment and Stewardship
U S Department of Energy, Rocky Flats Field Office
10808 Highway 93, Unit A
Golden, CO 80403-8200

RE: B668 Facility Disposition RSOP Notification

Dear Mr Legare

The Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division has reviewed your October 6, 2003 letter notifying us that the Facility Disposition RSOP will be utilized during the demolition of B668 Based on information provided in this Notification and numerous discussions, we agree that with appropriate safeguards to protect and properly dispose of the contaminated slab, B668 can be demolished utilizing the Facility Disposition RSOP

If you have any questions regarding this correspondence please contact me at (303) 692-3367 or David Kruchek at (303) 692-3328

Sincerely,

Steven H. Gunderson
RFCA Project Coordinator

cc. Steve Tower, DOE
Tim Rehder, EPA
Duane Parsons, KH
Administrative Records Building T130G
Karen Wiemelt, KH
Dave Shelton, KH
Steve Nesta, KH

21/21